Preface

Our hardened media converter provides an affordable solution for rugged outdoor environments, transportation road-side cabinets, industrial shop floors, multi tenant dwellings or Fiber To The Home (FTTH) applications. Capable of operating at temperature extremes of -34°C to +74°C, this is by far the media converter of choice for harsh environments in which space constraints exist.

Plug-and-Play Solution:
The hardened media converter is a plug-and-play compact media converter which doesn't have any complicated software to set up.

This manual describes the installation and use of the hardened media converter with the link-fault-pass-through function. The converter also provides one channel media conversion between 1000BaseT and 1000BaseSX/LX.

The converter is in full compliance with IEEE802.3ab 1000BaseT and IEEE802.3z 1000BaseSX/LX standards.

In this manual, you will find:

- Product overview
- Features of the media converter
- Illustrative LED functions
- Installation instructions
- Specifications

Table of Contents

PREFACE 1

TABLE OF CONTENTS 2

INTRODUCTION 3

PRODUCT OVERVIEW 3
PRODUCT FEATURES 3
PACKING LIST 4

ONE-CHANNEL MEDIA CONVERTER 5

PORTS 5
PORT SETTINGS 5
FRONT PANEL & LEDS 6

INSTALLATION 7

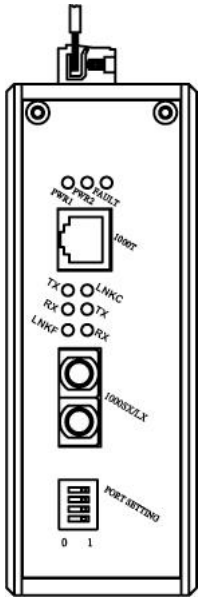
SELECTING A SITE FOR THE EQUIPMENT 7
DIN RAIL MOUNTING 7
CONNECTING TO POWER 8

SPECIFICATIONS 11

Introduction

The media converter provides one channel for media conversion between 1000BaseT and 1000BaseSX/LX with the link-fault-pass-through function. This hardened fiber optic solution is perfectly suitable for industrial applications or rugged environmental conditions.

Product Overview



Product Features

- Meets NEMA TS1/TS2 environmental requirements such as temperature, shock, and vibration for traffic control equipment
- Meets IEC61000-6-2 EMC Generic Standard Immunity for industrial environment
- One-channel media conversion between 1000BaseT and 1000BaseSX/LX
- Fiber media allows Multi-mode fiber or Single-mode fiber using SC
- The fiber port should be set to (forced full duplex mode, forced full duplex mode) or (auto mode, forced full duplex mode) when two 1000BaseT and 1000BaseSX/LX one-channel media converters are connected to each other via fiber port
- Auto negotiation and Auto MDIX on TX port
- One DIP switch for configuring link-fault-pass-through, fiber auto negotiation, and port link down alarm
- Non-blocking full wire-speed forwarding rate

- Back-pressure & IEEE802.3x compliant flow control
- Alarms for power and port link down failure by relay output
- Operating voltage and Max. current consumption: 12VDC @ 0.51A, 24VDC @ 0.3A, 48VDC @ 0.19A. Power consumption: 9.12W Max.
- Power Supply: Redundant DC Terminal Block power inputs or 12VDC DC JACK with 124-240VAC external power supply
- Supports Din-rail or panel mounting installation
- Front panel status LEDs

<Note>
One of the fiber ports should be forced to full duplex mode when two 1000BaseT and 1000BaseSX/LX one-channel media converters are connected to each other via fiber port.

Packing List

When you open this product package, you will find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to our authorized reseller.

The Media Converter
User's Manual
AC to DC Power Adaptor and Power Cable (optional)

One-Channel Media Converter

Ports

The Converter provides one copper port and one fiber port. The fiber port provides options of Multi-mode fiber or Single-mode fiber using an SC connector.
The copper port uses RJ-45 connector, auto-MDIX, and auto negotiates.

Port Settings

Port settings are made very simple by means of a DIP (Dual Inline Package) switch on the front panel of the hardened media converter.
Default DIP switch settings:

DIP Switch

There are four pins on the DIP switch for port settings. Refer to the table below for more details.

DIP switch No.	0	1	
1	Disable LFPT	Enable LFPT	LFPT: link-fault-pass-through
2	Enable auto negotiation for fiber port	Enable forced mode for fiber port	
3	Disable link down alarm for copper port	Enable link down alarm for copper port	
4	Disable link down alarm for fiber port	Enable link down alarm for fiber port	

Front Panel & LEDs

LED Indicators

The LED indicators give you instant feedback on converter status:

LED's	State	Indication
FAULT	Steady	Power or ports function abnormal
	Off	Power and ports function normal
PWR1 PWR2	Steady	Power on PWR stands for POWER
	Off	Power off
LNKC	Steady	A valid network connection established for copper port LNK stands for LINK
	Off	No valid network connection established for copper port
LNKF	Steady	A valid network connection established for fiber port LNK stands for LINK
	Off	No valid network connection established for fiber port
TX	Flashing	Transmitting data TX stands for TRANSMIT
	Off	No transmitting data
RX	Flashing	Receiving data RX stands for RECEIVE
	Off	No data being received

Installation

This chapter gives step-by-step installation instructions for the Converter.

Selecting a Site for the Equipment

As with any electric device, you should place the equipment where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

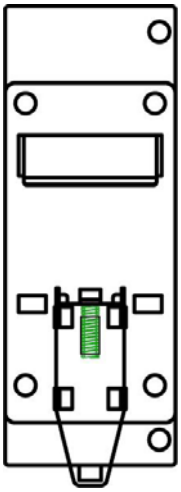
- The ambient temperature should be between -34 to 74 degrees Celsius.
- The relative humidity should be less than 95 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards for IEC 801-3, Level 2 (3V/M) field strength.
- Make sure that the equipment receives adequate ventilation. Do not block the ventilation holes of the equipment.
- The power outlet should be within 1.8 meters of the product.

DIN Rail Mounting

Fix the DIN rail attachment plate to the back panel of the media converter.

Installation: Place the media converter on the DIN rail from above using the slot. Push the front of the media converter toward the mounting surface until it audibly snaps into place.

Removal: Pull out the lower edge and then remove the media converter from the DIN rail.



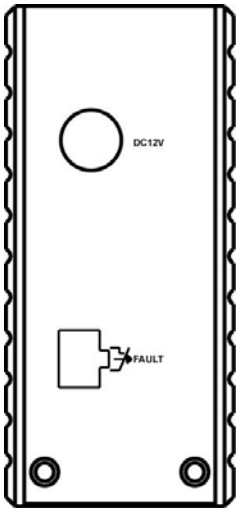
Connecting to Power

Redundant DC Terminal Block Power Inputs or 12VDC DC Jack:

12VDC DC Jack

Step 1: Connect the supplied AC to DC power adapter to the receptacle on the topside of the media converter.

Step 2: Connect the power cord to the AC to DC power adapter and attach the plug into a standard AC outlet with the appropriate AC voltage.

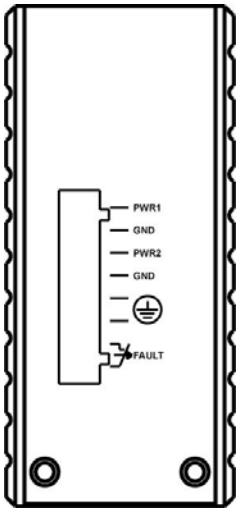


Redundant DC Terminal Block Power Inputs

There are two pairs of power inputs that can be used to power up this device. You only need to have one power input connected to run the media converter.

Step 1: Connect the DC power cord to the plug-able terminal block on the media converter, and then plug it into a standard DC outlet.

Step 2: Disconnect the power cord if you want to shut down the media converter.



Alarms for Power and Port Failure

Step 1: There are two pins on the terminal block that are used for power failure detection. It provides a normal closed output when the power source is active. Use this as a dry contact application to send a signal for power failure detection.

Terminal Assignments	
PWR1	Power Input 1 (10 ~ 48VDC)
GND	Power Ground
PWR2	Power Input 2 (10 ~ 48VDC)
GND	Power Ground
⏚	Earth Ground
FAULT	1. The relay opens if PWR1 or PWR2 fails 2. The relay opens if the Port Link is broken (When Link Down Detection is Enabled)

DIP 1 2 3 4				
1	LFP Enable	FIBER F. Mode	COPPER LNK_DOWN_Det. ON	FIBER LNK_DOWN_Det. ON
0	LFP Disable	FIBER Auto Mode	COPPER LNK_DOWN_Det. OFF	FIBER LNK_DOWN_Det. OFF

Special note:
The relay output is normal in an open position when there is no power to the media converter. Please do not connect any power source to this terminal to prevent a shortage to your power supply.

Specifications

Applicable Standards		IEEE 802.3ab 1000BaseT IEEE 802.3z 1000BaseSX/LX
Fixed Ports		1 copper port, 1 fiber port
Speed	1000BaseT	2000Mbps for full-duplex
	1000BaseSX/LX	2000Mbps for full-duplex
Forwarding rate		1,488,000pps for 1000Mbps
Cable	1000BaseT	4-pair UTP/STP Cat. 5 up to 100m
	1000BaseSX/LX	MMF (50 or 62.5μm), SMF (9 or 10μm)
LED Indicators		Per Unit- (3 LEDs): PWR1, PWR2, FAULT
		Per Port- Copper (3 LEDs): LNKC, TX, RX Fiber (3 LEDs): LNKF, TX, RX
Dimensions		W50 × D110 x H136 mm
Weight		0.6 Kg
Power		DC Jack: 12VDC, External AC/DC required Terminal Block: 10-48VDC
Operating Voltage & Max. Current Consumption		12VDC @ 0.51A, 24VDC @ 0.3A, 48VDC @ 0.19A
Power Consumption		9.12W Max.
Operating Temperature		-34°C ~ 74°C
Storage Temperature		-45°C ~ 93°C
Humidity		10 ~ 95%, non-condensing
Safety		UL 60950, EN60950, IEC 60950, IEC 61000-6-2
Emissions		FCC Part 15, Class A CE: EN55022 (CISR22 Class A) EN55024 (CISPR24 Class A)

Standards
ESD Standard (IEC 61000-4-2)
Radiated FRI Standards (IEC 61000-4-3)
Burst Standards (IEC 61000-4-4)
Surge Standards (IEC 61000-4-5)
Induced RFI Standards (IEC 61000-4-6)
Magnetic Field Standards (IEC 61000-4-8)
Voltage Dips Standards (IEC 61000-4-11)
Environmental Test Compliance: Vibration Resistance (IEC 60068-2-6) Shock (IEC 60068-2-27) Free Fall (IEC 60068-2-32)
NEMA TS1/2 Environmental requirements for traffic control equipment